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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,312	11/22/2000	Walter F. Rausch	1437	3505

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EXAMINER	
NGUYEN, DUC M	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/718,312	RAUSCH ET AL.	
	Examiner	Art Unit	
	Duc M. Nguyen	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,8,9,11-23,26-38,40,41,44-50,52-60,62,64 and 66-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,8,9,11-23,26-38,40,41,44-50,52-60,62,64 and 66-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's response filed on 5/18/06. Claims 1, 3-5, 8-9, 11-23, 26-38, 40-41, 44-50, 52-60, 62, 64, 66-68 are now pending in the present application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims **1, 8, 11, 14, 35, 41, 45, 57, 64, 67, 68** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims recites the "continuously" limitation. However, the recited term "continuous(ly)" is **never** recited in the specification, particularly to page 15, line 20 to page 16, line 6, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In addition, it is noted that the term "phase locked" is also used by the specification (see page 16, lines 1-3), it is clear that the stabilizing system as described by the specification also use the GPS timing signal to phase lock the oscillator signal in the similar way (i.e, calibrate or synchronize) as described by prior arts. Accordingly, the

term "continuously" would also be treated as "periodically" as described by cited prior arts.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **1, 3-5, 8-9, 14-23, 26, 28-29, 31, 35-38, 40, 45-52, 54, 56-62, 67** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo et al** (US **6,411,825**) in view of **Dwyer** (US **5,970,400**), **Stilp** (US **6,266,013**) and **Bickley et al** (US **5,982,322**).

Regarding claims **8, 35, 57**, **Csapo** discloses a wireless communication system comprising an antenna located at a communication tower (see **Fig. 9** and **col. 6, lines 28-42**), comprising:

- a communication tower (see Fig. 9);
- an antenna (see Fig. 9, ref. 120);
- a frequency converter (implicitly disclose in col. 4, lines 43-50), wherein in order to convert a high frequency signal to a low frequency signal and vice versa, a frequency converter (sometime called mixer) is needed. Since "the block conveter" is just a mixer or frequency converter (see specification, line 23 of page 11), the frequency converter would read on the "block converter"

- a fiber optic transmitter (see col. 6, lines 55-59), wherein it is clear that in order to provide an optical signal that will be less lossy than an electric signal, an optical/electrical conversion and an optic transmitter-receiver should be utilized. Therefore, **Csapo** would obviously disclose a fiber optic transmitter when using the fiber cable for transmission;
- a fiber optic receiver (see col. 6, lines 55-59), wherein it is clear that in order to provide an optical signal that will be less lossy than an electric signal, an optic/electrical conversion and an optic transmitter-receiver should be utilized. Therefore, **Csapo** would obviously disclose a fiber optic receiver when using the fiber-optic cable for transmission;
- a converting system configured to convert a communication signal to a lower frequency signal, and to convert the lower frequency signal to an optical signal, and to transmit the optical signal to an optical receiving system (see col. 4, lines 43-50 and col. 6, lines 55-59). Since **Csapo** discloses a frequency converter, a fiber optic transmitter and a fiber optic receiver as explained above in the preceding paragraphs, it is clear that **Csapo** would obviously disclose such converting system when using a fiber-optic cable for transmission;
- a stable timing source located at a base of a tower (see Fig. 13, ref. 140 regarding GPS receiver, Time & Frequency Generator and col. 7, lines 22-26), wherein it is clear that the GPS timing signal is a "stable" timing signal (see specification, page 8, line 6);

- a GPS receiver (see Fig. 13, ref. 140);
- amplifiers (PA and LNA), a filter (see col. 7, lines 30-45);
- a frequency synthesizer (see Fig. 13 and col. 7, lines 40-45), which would implicitly generate a stabilized local oscillator signal (see **Bickey**, col. 8, lines 1-20) for the frequency converter as mentioned above, in order to convert a high frequency signal to a low frequency signal and vice versa (see **Csapo**, col. 4, lines 43-50) for the transceiver modules in the MU and PRU;

However, **Csapo** is silence in that the GPS "stable" timing signal is used as a stable timing signal for the frequency synthesizer to generate a "stable" oscillator signal. However, it is noted that using the GPS "stable" timing signal as a stable timing signal for the frequency synthesizer to generate a "stable" oscillator signal is well known in art as disclosed by **Dwyer** (see col. 11, lines 29-45). Further, since **Csapo** discloses that the GPS provides "accurate clock" and "frequency signals" to the main unit (MU) and the remote unit (PRU) (see **Csapo, col. 7, lines 22-27**), and further disclose a 10 MHz reference signal carried by the cable connecting the MU and the PRU (see **Csapo, col. 9, lines 22-33**), it is clear that the 10 MHz reference signal would be the GPS timing reference signal that would be used by the frequency synthesizer for phase locking the oscillator to the GPS timing reference signal in the similar way as disclosed by **Stilp** (see Fig. 2, GPS 10-6 and col. 10, lines 3-12 and col. 11, lines 23-28 regarding the 10 Mhz reference signal).

Therefore, in view of **Bickley, Dwyer** and **Stilp** regarding the characteristics of a frequency synthesizer and a timing reference (clock signal), and based on **Csapo**

disclosure regarding the GPS that provides "accurate clock" and "frequency signals" to the main unit (MU) and the remote unit (PRU), and the 10 MHZ reference signal carried by the cable connecting the MU and the PRU as mentioned above, one skilled in the art would recognize that **Csapo** would obviously, if not **implicitly**, teach the GPS "timing signal" would be used as a system timing reference ("accurate clock") to calibrate (or synchronize or phase lock) the oscillator signal of the frequency synthesizers of the MU and PRU for transceiver modules, in order to provide "frequency signals" (oscillator signals) for the frequency converters (or mixers) of the MU and PRU.

In an alternative way, since using a received GPS signal to produce a reference clock signal to ensure that base stations are synchronized in operation is well known in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate **Dwyer**'s teaching to **Csapo**, for utilizing a GPS timing signal as claimed, to improve the stability of the oscillators, thereby providing a stabilized oscillator signal that does not drift. Note that the "continuously" limitation is clearly disclosed by **Dwyer** (see **col. 11, lines 38-39**).

Regarding claims **1, 3-5, 8-9, 14-17, 22, 26, 29, 31, 36-38, 40, 45-48, 50-52, 56, 58-60, 62, 67**, it is clear that **Csapo** as modified would disclose block converter, GPS timing source, external receiver (GPS receiver), amplifier, filter, optic transmitter and optic receiver (when using a fiber-optic cable for transmission) as claimed, for the same reason as set forth in claim 8 above. Also note that the filter in Csapo's reference would obviously filter at least one member of a group comprising emissions and another communication (interferences) as claimed, for improving signal reception quality.

Regarding claims **18-20, 49,** the claims are rejected for the same reason as set forth in claim 1 above. In addition, **Csapo** would disclose an "inserter" as claimed (see col. 9, lines 30-45). Further, since AC or DC power is used for operating the system (see col. 9, lines 5-7), it is clear that a transformer would be needed to transform power from a first level to a second level as claimed (i.e, 110 or 220 or 48V), in order to provide a suitable power supply to the system.

Regarding claim **21**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, it is clear that a power distributor would be needed in order to supply power to each component of the system (see **Csapo**, col. 8, lines 1-11 and col. 9, lines 5-7).

Regarding claim **23**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, since the use of a suppressor is well known in the art (Official Notice), for suppressing interferences, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Csapo, Nielsen** and **Bickley** to further provide a suppressor to suppress interferences as claimed, for improving signal reception quality.

Regarding claims **28, 49, 54**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, since the GPS receiver of the PMU is located at a base of a tower, it is clear that **Csapo** as modified would disclose the GPS signal or stable timing signal is transmitted at a base of a tower as claimed (see **Csapo**, Fig. 9 and col. 8, lines 56-59), and would be inserted on a transmission medium to provide the timing signal to the oscillator of the frequency synthesizer.

5. Claims **27, 53, 68** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo** in view of **Dwyer**, **Stilp** and **Bickley,** and further in view of **Nielsen** (US Pat No. **6,161,024**).

Regarding claims **27, 53, 68**, the claims are rejected for the same reason as set forth in claim 1 above. However, **Csapo** fails to disclose the GPS signal (or stable timing signal) is located at the upper portion of a tower. However, in an analogous art, **Nielsen** suggests that the GPS receiver be placed high relative to the surrounding terrain (see **col. 1, lines 50-52**). Therefore, it would have been obvious to one skill in the art at the time the invention was made to further modify **Csapo** to place the GPS receiver at the upper portion of a tower as claimed, for improving signal reception quality due to closer distance to GPS satellites while reducing the blockage of GPS satellite signals caused by tall buildings.

6. Claims **33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo** in view of **Dwyer**, **Stilp** and **Bickley,** and further in view of **Komara** (US Pat No. **6,161,024**).

Regarding claim **33**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, since the use of redundant components in a communication system is well known in the art for backup failure components as disclosed by **Komara** (see Fig. 1 and col. 2, lines 15-40), it would have been obvious to one skilled in the art at the time the invention was made to incorporating **Komara** 's teaching to **Csapo,** to

comprise such redundant components as recited in the claims, for providing a back up system to minimize disruptions of the communication system.

Regarding claim **34**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it is clear that a redundant system would obviously comprise a selector for the redundant optic transceiver as claimed, in order to select only the current active optical signal for processing.

7. Claims **11-13, 30, 32, 41, 44, 55, 64, 66** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Csapo** in view of **Dwyer**, **Stilp, Nielsen, Bickley** as applied to claim 27 above, and further in view of **Quayle** et al (US Pat No. **6,865,169**).

Regarding claims **30, 32, 41, 44, 55, 64, 66**, the claims are rejected for the same reason as set forth in claim 27 above. However, **Csapo** as modified fails to disclose a MMDS signal. However, **Quayle** discloses a base station which operates in MMDS bands (see col. 3, lines 10-31). Since **Csapo** suggests that the system can support a variety of protocols (see col. 7, lines 16-22), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Csapo, Nielsen** and **Bickley** to support MMDS system as disclosed in **Quayle**'s reference as well, for utilizing advantages of MMDS bandwidth such as providing high speed Internet access to subscribers.

Regarding claims **11-13,** the claims are rejected for the same reason as set forth in claim 30 above. In addition, since **Nielsen** suggests that the GPS receiver be placed high relative to the surrounding terrain (see **col. 1, lines 50-52**), it would have been

obvious to one skilled in the art at the time the invention was made to place the GPS receiver at the upper portion of a tower as claimed, for improving signal reception quality due to closer distance to GPS satellites while reducing the blockage of GPS satellite signals caused by tall buildings.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 8, 11, 14, 35, 41, 45, 57, 64, 67, 68 have been considered but are moot in view of the new ground(s) of rejection.

Examiner's note : This application apparently relies on the patentability of a claimed stabilizing system. However, the Drawing provides no "detailed" structure of the stabilizing system in such a way that would distinguish the claimed stabilizing system from cited prior arts (i.e, see **Talbot**, Figs 3-5 regarding the detailed structure of a "stabilizing" system). In addition, Applicant apparently relies on the "claimed terminologies" such as "stable timing" and "stabilized oscillator" for its patentability rather than on its structure. Further, since the tower in **Csapo** reference is a fixed station, it is clear that the GPS would not be used for the location information, but for timing reference (accurate clock) information. By doing so, the timing signals of the oscillators (inherent components of the frequency synthesizer) of the transceivers of the MU and PRUs would be recalibrated or phase locked to the GPS timing reference signal, and would be stabilized by the GPS timing signal, thereby generate a stabilized local oscillator signal as claimed. Therefore, with the knowledge of one of ordinary skill

in the art and based on Csapo disclosure, the claimed stabilizing system would be either anticipated or made obvious by **Csapo**.

Conclusion

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for formal communications intended for entry)

(571)-273-7893 (for informal or draft communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-4177.

Duc M. Nguyen

July 6, 2006